

NEW SPECIES OF *AGERATINA* FROM ANDEAN SOUTH AMERICA (EUPATORIEAE: ASTERACEAE)

Harold Robinson

Department of Botany, National Museum of Natural History, P.O. Box 37012, Smithsonian Institution, Washington, D.C. 20013-7012

ABSTRACT

Five species of *Ageratina* from Colombia, *A. fleischmannioides*, *A. killipii*, *A. rangelii*, *A. persetosae*, and *A. trianae*; one from Peru, *A. dillonii*; and two from Bolivia, *A. acevedoi* and *A. feuereri* are described as new.

KEY WORDS: *Ageratina*, Eupatorieae, Colombia, Peru, Bolivia.

The genus *Ageratina* Spach was resurrected by King and Robinson in 1970 for a series of over 200 species that had long been placed in *Eupatorium* L. Additions have continued to be made to the genus, especially by King and Robinson 1990, Turner (as summarized in 1997), and Robinson (2003). New species have continued to be discovered, as noted below, sometimes as a result of clarification of older concepts.

A new review of specimens put aside during identification work has led to the recognition of many new species of *Ageratina* here separated out for description. Of these, the first is an unusual species from Sierra Nevada de Santa Marta in northern Colombia that proves closely related to *A. flaviseta* (B.L. Rob.) R.M. King & H. Rob. of the same mountain. The study of the latter species led to a reinvestigation of the specimens in the herbarium under the name *Ageratina flaviseta*, resulting in the description of two additional new species. Material from Colombia erroneously placed under the name *A. fastigiata* has also been examined and described as new. A fifth new species from Colombia is from the Pacific slope area. In habit it resembles some species of *Fleischmannia* from that area. The new Peruvian species is one of a group in the northern part of that country notable for the tomentose undersurfaces of the leaves, and the material had been

erroneously identified as *A. chachapoyensis* (Cuatrec.) R.M. King & H. Rob. The two new species from Bolivia are both notable for the small size of their heads and florets.

The new species are as follows with their subgeneric placements indicated.

Ageratina (*Andinia*) *persetosa* H. Rob., **sp. nov.** TYPE: COLOMBIA. César (as Magdalena): Sierra Nevada de Santa Marta, entre Duriaimena y San Sebastián, alt. 3300-3450 m, 10 Dec 1978, O. Rangel, H. Sturn & E. Wedler 1938 (holotype NY; isotype COL). (Fig. 1).

Ad Ageratina flaviseta valde affinis sed in laminis foliorum tote dense pilosis et in bracteis involucri longe acutis vel acuminatis distincta.

Small shrubs 0.5-1.0 m tall, rather densely branched; stems terete, densely covered with stout, erect-patent, yellowish, antrorse setae ca. 2 mm long; internodes 0.9-2.5 cm long. Leaves opposite, with petioles 0.5-1.0 cm long, densely covered with yellowish setae; blades elliptical, 2.2-4.3 cm long, 1.4-2.2 cm wide, base obtuse, margins with 6-10 blunt serrations, apex short-acute, both surfaces with dense yellowish antrorse setae, not completely obscuring surface except on midvein below, veins exsulcate, more so below, usually pinnate with 4-8 widely spreading secondary veins in each half, 1 vein often more ascending and appearing triplinervate, veinlets closely prominulous, without glandular dots. Inflorescence corymbiform, in dense clusters ca. 3 cm high and 5 cm wide, terminal on leafy branches with subtending internodes not elongate and subtending leaves only moderately reduced; peduncles 1-5 mm long, densely setiferous with yellow hairs; heads narrowly campanulate, ca. 11 mm high, 5-6 mm wide before drying; involucre bracts ca. 13, eximbricate, in ca. 2 series, narrowly lanceolate, mostly 7-8 mm long, with slender often reddish tips, triplinerved and setiferous outside, sparse on inner bracts. Receptacle glabrous. Florets 13-15; corollas red-purple, narrowly funnelform, ca. 6 mm long, glabrous outside except for few small hairs on backs of some lobes, basal tube ca. 2 mm long, throat ca. 3 mm



Fig. 1. *Ageratina persetosa* H. Robinson, holotype, New York Botanical Garden (NY).

long, lobes ca. 1 mm long, with nearly smooth outer surface, slightly roughened at tip. Densely papillose inside; anther collar ca. 0.4 mm long, cell walls scarcely ornamented; anther thecae pale, ca. 1.5 mm long, apical appendage ovate-oblong, ca. 0.35 mm long, 0.25 mm wide; style base without enlarged node. Achenes ca. 3 mm long, with minute glands on ribs and upper surfaces, a few setulae near pappus; carpodium annuliform; pappus bristles ca. 35, 5-6 mm long, scarcely narrowed below. Pollen grains ca. 25 μ m in diameter.

Ageratina persetososa is known only from the type and isotype. The label describes the plant as "arbustillo" without measurement, and describes the flowers as "morados".

A basal styler node is lacking in the type material, but that feature is probably not consistently lacking. As such, the species seems closely related to species of the subgenus *Andinia* that are numerous in the area of the Sierra Nevada de Santa Marta. This seems particularly true of *A. flaviseta* (B.L. Rob.) R.M. King & H. Rob. A scan of the type of that species, kindly provided by the herbarium at Kew, shows that species to be an almost immediate relative, differing primarily by the long hairs of the leaf blade being more restricted to the main veins of the undersurface, and the involucre bracts being broader and more shortly acute.

The study of the above new species led to a review of specimens previously placed under the name *Ageratina flaviseta* (B.L. Rob.) R.M. King & H. Rob. These are as follows.

Ageratina (Andinia) flaviseta (B.L. Rob.) R.M. King & H. Rob., Phytologia 19: 221. 1970.

Eupatorium flavisetum B.L. Rob., Proc. Amer. Acad. Sci. 54: 244. 1918.

B. L. Robinson (1918a) based the species on Funck no. 520, collected 1842-3, preserved at K, originally cited as "Venezuela &c." Robinson (1928) cited a duplicate of the Funck collection at the

University of Geneva with more complete collection data specifying not Venezuela, but the Sierra Nevada de Santa Marta in Colombia.

Eupatorium flavisetum var. *asetosum* B.L. Rob., Contr. Gray Herb., n.s. 80: 20. 1928.

B. L. Robinson (1928) also described a new variety based on supposedly less setose plants. An isotype of the variety at US shows the veinlets of the lower leaf surface flattened and bearing glands on their flattened or "furrowed" tops, a feature not seen in the type of the species or in *A. persetosa* or any of the following species. The feature is characteristic of the more widely distributed *A. theaeifolia* (Benth.) R.M. King & H. Rob. of Colombia and Venezuela and *A. glyptophlebia* (B.L. Rob.) R.M. King & H. Rob. of Colombia, and the variety is regarded here as as a synonym of the latter species.

Ageratina (*Andinia*) *rangelii* H. Rob., **sp. nov.** TYPE: COLOMBIA. César (as Magdalena): Sierra Nevada de Santa Marta, Vallecito de la Laguna "La Perdida" entre el Filo La Cumbre y La Cuchilla La Cimarrona, alt. 3350 m, Dec 1977, *O. Rangel Ch. 1370A* (holotype US, isotype COL). (Fig. 2).

Ad A. flavisetam superficialiter simila sed in setis vix patentiter et in foliis ovatis margine dense serrulatis distincta.

Shrubs to 1.2 m high, moderately branched; stems terete, rather sericeous with dense, slender, slightly flexuous, antrorse, yellow hairs; internodes mostly 0.6-1.2 cm long. Leaves opposite, petioles ca. 5 mm long, densely sericeous with yellow hairs to 1 mm long; blades ovate, mostly 3.5-6.0 cm long, 1.3-2.3 cm wide, base and apex short-acute, margins closely multi-serrulate, venation pinnate, with ca. 6 secondaries in each half, both surfaces resinous, veinlets closely reticulate, prominulous, not flattened or furrowed on surface, with slender, yellow, reclining, antrorse hairs mostly on midvein, some on secondaries and margin, and very sparse on lamina. Inflorescence terminal on leafy stems, closely subtended by moderately reduced leaves; peduncles 1-6 mm long, densely antrorsely setulose; heads ca. 12 mm high, involucre ca. 7 mm high and 4 mm wide, with ca. 14



Fig. 2. *Ageratina rangelii* H. Robinson, holotype, United States National Herbarium (US).

eximbricate bracts in ca. 2 series; bracts lanceolate, mostly 5-6 mm long, to 1 mm wide, 1 or 2 smaller bracts outside, narrowly acute to a blunted tip, outer surface densely appressed-pilosulous; florets ca. 10-20 in a head; corollas lilac or red-violet, narrowly funnelform, ca. 6.5 mm long, basal tube ca. 2.5 mm, throat ca. 3 mm, lobes ca. 0.8 mm, nearly glabrous outside, backs of lobes smooth with few hairs, densely papillose inside; anther collars ca. 0.4 mm long, thecae pale, ca. 2 mm long; apical appendage broadly ovate-oblong, ca. 0.35 mm long, 0.27 mm wide; style base slightly enlarged. Achenes ca. 4 mm long, with many minute glands, short setulae on ribs; carpopodium annuliform; pappus of ca. 35 capillary bristles, ca. 6 mm long, often reddish, usually slightly broader and more scabrid distally. Pollen grains ca. 27 μ m in diam.

PARATYPE: COLOMBIA. César (as Magdalena): Sierra Nevada de Santa Marta, alrededores de cabaceras de Río Seville, ca. 3490 m, 20 Jan 1959; *H.G. Barclay & P. Juajibioy 6571* (COL, US). Attached comments are, "shrub to 1.5 m tall. Leaves lighter below, to 6 x 2 cm. Heads purple; involucre green below, streaked with purple above; disc flowers red-violet, lighter where spreading; stigmas deeper purple." Habitat cited, "in large, deep draw bounded by rock outcrops; with trees and shrubs; glassy below and above, west-facing slope above campsite, on south side of river. Sta. 5".

The specimens were determined as *Ageratina flaviseta* initially because of the locality of Santa Marta and yellowish hairs concentrated on the midrib of the leaf. The original description also agreed in the lanceolate and pubescent involucral bracts. The description differed, however, in stating the hairs to be patent, and in measurements of the head and the count of the pappus bristles. The latter characters were perhaps incorrect, but the shape of the leaves in the type of *A. flaviseta* was totally different, elliptical with a few remote, blunt teeth.

Ageratina (Andinia) killipii H. Rob., **sp. nov.** TYPE: COLOMBIA. Norte de Santander: Cordillera Oriental; road from Pamplona to Toledo, crossing the divide between Río La Teja (Maracaibo drainage) and Río Masme (Orinoco drainage), 2800-3000 m; dense



Fig. 3. *Ageratina killipii* H. Robinson, holotype, United States National Herbarium (US).

woods; 27-28 Feb 1927; *E.P. Killip & A.C. Smith 19844* (holotype US, isotypes GH, NY). (Fig. 3).

Ad A. rangellii similis sed in pilis cauli patentibus in floribus 5 vel 6 in capitulo et in bracteeae involucri oblongis et extus glabris differt.

Shrubs or trees to 5 m tall, moderately branched; stems pale to brownish, terete, short-hirsute with stiff, spreading hairs, becoming glabrous below; internodes 0.5-2.5 cm long. Leaves opposite, petioles 0.2-0.3 cm long, essentially glabrous; blade ovate to oblong-ovate, 2.5-6.0 cm long, 1-3 cm wide, base obtuse to somewhat rounded, margins minutely serrulate with ca. 10 small, blunt teeth, apex short-acute, venation subpinnate with 1 or 2 lower secondaries more ascending to triplinervate, surfaces shiny, nearly glabrous with very sparse erect hairs, lower surface paler, without obvious glands, veinlets in close prominulous reticulum, veins not flattened or furrowed. Inflorescence broadly corymbiform, terminal on leafy branches, without elongated internodes; clusters to 9 cm wide, whole inflorescence rarely to 27 cm wide; peduncles 0.1-4.0 mm long, hirtellous with yellow hairs. Heads 7-8 mm high; involucre 4-5 mm high, 2-3 mm wide, weakly subimbricate; bracts ca. 10, in ca. 3 series, oblong or oblong-elliptic, 1.5-4.5 mm long, 0.4-1.3 mm wide, weakly bicostate, membranaceous distally, apex rounded with fringe of small hairs, outer surface glabrous. Florets 5 or 6 in a head; corollas white to pink, narrowly funnellform, 6.0-6.5 mm long, glabrous outside, basal tube 2 mm long, throat 3 mm long, lobes ca. 1 mm long, smooth outside, densely papillose inside; anther collars ca. 0.35 mm long, thecae reddish, 1.7 mm long; apical appendages oblong-ovate, ca. 0.35 mm long, 0.26 mm wide; style base enlarged. Achenes 3.2-3.5 mm long, glabrous; carpopodium short, stopper-shaped; pappus mostly 4.0-4.5 mm long, of ca. 32 slender bristles in 1 series, scarcely broader distally. Pollen grains ca. 27 μ m in diam.

PARATYPES: COLOMBIA. Norte de Santander: Cordillera Oriental, eastern slope of Páramo del Hatico, en route from Toledo to Pamploma, 2800 m, edge of woods; 12 Mar 1927; *E.P. Killip & A.C. Smith 20602* (GH, NY, US); Páramo de Hatico, en route from Toledo to Pamploma, ca. 2900 m, 12-13 Mar 1927; *E.P. Killip & A.C. Smith*

20616 (GH, NY, US); Páramo de Fontibón, 2600-2750 m, 10-16 Oct 1941; *J. Cuatrecasas, R.E. Schultes & E. Smith 12329* (COL, US); Páramo de Tamá, vertiente de Samaria, 2600-2900 m, 29 Oct 1941; *J. Cuatrecasas, R.E. Schultes & E. Smith 12731* (COL, US).

Material of *Ageratina killipii* was initially identified with the Colombian and Venezuelan species now known as *A. theaefolia* (Benth.) R.M. King & H. Rob., but was placed more recently with *A. flaviseta* because of the spreading yellow hairs of the stems. It differs from both of these by the few florets in the heads, and the oblong involucre bracts with glabrous outer surfaces. It differs further from *A. theaefolia* by the unfurrowed veinlets of the leaves. The bracts and number of florets also distinguish the species from *A. perisetosa* and *A. rangelii* described above. Though there are a few hairs on the veins of the leaves of *A. killipii*, the petioles are mostly glabrous in contrast to the stems.

Ageratina (*Andinia*) *trianae* H. Rob., **sp. nov.** TYPE: COLOMBIA. Cundinamarca: Bogota, s.d., *J.J. Triana 1229* (holotype US, isotype BM). (Fig. 4).

Ad Ageratinam tinifoliam maxime simila sed in foliis angustioribus et acutioribus in inflorescentibus elevatioribus in bracteis involucri inaequalioribus in floribus 10-12(-15) in capitulo et in acheniis plerumque setuliferis distincta.

Glutinous shrubs or trees 1.3-4.0 (-10.0) m tall, with 1 or more trunks, moderately branching; stems rather hexagonal, with remnants of glands, without evident hairs; internodes mostly 1-3 cm long; branches usually ascending at 45-65° angles. Leaves opposite, petioles slender, 0.8-1.7 cm long; blades narrowly ovate to elliptical, mostly 3.5-9.0 cm long, 1.0-3.5 cm wide, base short acute, margins multi-crenulate above middle, apex acute, surfaces glutinous, with scattered glandular dots, veinlets prominulous in a loose reticulum, venation pinnate with stronger basal 2 pairs of secondaries more ascending at 50-60° angles. Inflorescences terminal on leafy stems, broadly corymbiform, elevated above the subtending leaves; densely branched; peduncles 1-3 mm long, glutinous and sparsely pilosulous. Heads 5-8



Fig. 4. *Ageratina trianae* H. Robinson, holotype, United States National Herbarium (US).

mm high, 2-4 mm wide; involucre subimbricate, 4-5 mm high, with 14-17 membranaceous bracts in 3 unequal series, mostly 1.5-4.5 mm long, 0.5-1.0 mm wide, apices rounded or obtuse. Thinly glutinous and usually hairless outside. Florets 10-12 (-15) in a head; corollas white, 4.5-5.0 mm long, mostly glabrous outside, basal tube ca. 1 mm long, with glands outside, throat 2.5-3.0 mm long, lobes 0.3-0.5 mm long, smooth outside, densely papillose inside; anther collars ca. 0.5 mm long; thecae reddish, ca. 1 mm long; apical appendage rounded, ca. 0.15 mm long, 0.18 mm wide; style base with node; style branches white or bluish. Achenes 2.0-2.3 mm long, usually setulose along ribs; carpopodium annuliform; pappus of ca. 25 whitish capillary bristles, ca. 4 mm long, sometimes broadened, but not broader at tips. Pollen grains ca. 27 μ m in diam.

PARATYPES: COLOMBIA. **Department unknown:** *J.C. Mutis 4810* (MA, US); *J.J. Triana 46* (BM, US); *J.J. Linden 40* (BM, US). **Antioquia:** Valle del Cocuy, SW slopes, 3100-3750 m, 8 Sep 1938, *J. Cuatrecasas 1284* (COL, US); Pass at Sta. Elena, near Medellín, 2300 m, 16 Oct 1945, *W.H. Hodge 6561* (US). Boyacá: Municipio de Susacón, vereda de Guantiva, páramo del Dasaguadero, ciénaga del Visitador, 3300 m, 8 Aug 1958, *R. Jaramillo-Mejia, J. Hernández-Camacho & Th. Van der Hammen 973* (COL, US); Sierra Nevada del Cocuy, Alto Ritacuva, ca. 3850 m, 29 Apr 1959, *H.G. Barclay & P. Juajibioy 7497* (COL, US); Quebrada de San Paulino próximo Alto Ritacuva, ca. 3650 m, 3 May 1959, *H. G. Barclay & P. Juajibioy 7522* (COL, US); Páramo desde el Alto de Canutos a Las Gaitas, km 47, 3450 m, 13 Sep 1969, *J. Cuatrecasas & L. Rodriguez 27770* (COL, US); Páramo de La Rusia, NW-N de Duitama, Peña Blanca, 2 km al NE de Buenos Aires, 3780 m, 16 Dec 1972, *A.M. Cleef & R. Jaramillo-M. 7386* (COL, US); Valle del río Pómeca. Carretera a Sotaquirá, 3000 m, 20 Oct 1972, *H. Garcia-Barriga 20372* (COL, US); In valley Cañon de Mamarramos, 12 km N of Villa de Leyva, edge of Páramo at about 3400 m, 30 Jan 1981, *M. Melampy 1272* (US); Mpio. Duitama, corregimiento El Carmen vereda El Carmen, páramo de la Rusia, Macizo Santandereano, 3600 m, páramo perturbado. 6 Nov 1993, *J. Betancur et al. 4190* (COL, US). **Cundinamarca:** SW of Las Cruces, Bogotá, 2700-2800m, 24-25 Sep 1917, *F.W. Pennell 2181* (NY,US); Guadalupe, 3000 m, Nov 1911, *Bros. Apollinaire & Arthur 86* (US);

Around Bogotá, 1917, *Bro. Ariste-Joseph A37* (US); Páramo de Bogotá, 1917, *Bro. Ariste-Joseph A248* (US); Páramo de Guasca, Jan 1920, *Bro. Ariste-Joseph A540* (US); Suba Hill, near Bogotá, 7 Sep 1945, *H. Schiefer 701* (US); Cordillera Oriental vertiente Oriental, (Páramo), Valle del río San Cristobal, Alto de la Horqueta, 3500-3575 m, 16 Nov 1958, *H. García-Barriga 16209* (COL, US); Macizo de Bogotá, eastern drainage, Páramo de Palacio (Hacienda La Siberia), El Tablón, 3350 m, 14 Sep 1961, *J. Cuatrecasas, M.T. Murillo & R. Jaramillo M. 25662* (COL, US); Northern end of Sabana near Suba, Finca San Pedro, hill covered with residual Andean forest, 2620-2700 m, 13 Sep 1961, *J. Cuatrecasas & J. Jaramillo M. 25961* (COL, US); Mpio. De Zipaquirá, Páramo de Guerrero, 3200 m, 20 May 1985, *A. Sanabria, G. Lucero. L.C. Sanabria & M. Sánchez 135* (COL, US). **Santander:** Mountains east of Las Vegas, 3000-3300 m, 20-21 Dec 1926, *E.P. Killip & A.C. Smith 15841* (GH, NY, US); Western slope of Páramo Rico, 3600 m, 15-19 Jan 1927, *E.P. Killip & A.C. Smith 17700* (GH, NY, US); Páramo de Romeral, 3800-4100 m, 29-30 Jan 1927; *E.P. Killip & A.C. Smith 18524* (GH, NY, US); Páramo del Almorzadero, extremo sur, Peralonso, 3200 m, 19 Jul 1940, *J. Cuatrecasas & H. García-Barriga 9895* (COL, US); Páramo de Almorzadero, 31 Dec 1959-1 Jan 1960, *H.G. Barclay & P. Juajibioy 10415* (COL, US); Peralonso, Timocato, páramo, 3360 m, 20 Sep 1969, *J. Cuatrecasas & L. Rodríguez 27872* (COL, US).

The new species is based on what has previously been called *Ageratina fastigiata* (H.B.K.) R.M. King & H. Rob. in Colombia. Even though the name *Eupatorium fastigiatum* was applied to Colombian material by B.L. Robinson (1918b), he correctly recognized that the type was from northern Peru. In fact, that name properly belongs to the species that has been known as *Ageratina exerto-venosa* (Klatt) R.M. King & H. Rob. in southern Ecuador and northern Peru. Hieronymus (1905) published the name *Eupatorium pseudofastigiatum*, but the latter was mistakenly applied to the typical element of *Eupatorium fastigiatum*. No other name has been provided for the Colombian species.

The new species has the appearance of the common *Ageratina pseudochilca* (Benth.) R.M. King & H. Rob. of Ecuador, but the latter



Fig. 5. *Ageratina fleischmannioides* H. Robinson, holotype, United States National Herbarium (US).

has involuclral bracts of equal length, only 5-8 florets in a head, and achenes almost never setuliferous. Closest relationship is to the mostly Colombian *A. tinifolia* (HBK) R.M. King & H. Rob., and there are some apparent intergradations. Nevertheless, *A. tinifolia* characteristically has broader leaves with blunter tips, eximbricate to somewhat less subimbricate involuclral bracts, and 19-25 florets in the head. *Ageratina trianae* differs from both *A. pseudochilca* and *A. tinifolia* by the inflorescence being raised above the subtending leaves. Setulae on the achenes are usually present in *A. trianae* but they are sometimes equally developed in *A. tinifolia*. *Ageratina cuatrecasasii* R.M. King & H. Rob. of the Sierra de Perija is also related, but has much larger heads with 35-50 florets.

Ageratina (*Ageratina*) *fleischmannioides* H. Rob., **sp. nov.** TYPE: COLOMBIA. Antioquia: Municipio La Unión, Vía La Unión – Sonsón, 15 kms SE de La Unión, Finca La Rubiela, 2300 m, 6 Apr 1988; R. Callejas 6248 (holotype US, isotypes HUA, NY). (Fig. 5).

Herbae in habitis a Fleischmanniam sideritides et F. cuatrecasasii simila sed in bractis involucri et floribus ageratiniformibus distincta.

Plants herbaceous, 3-4 dm tall from creeping or clustered bases, moderately to densely branched; stems weakly quadrangular or hexagonal, pilose above, becoming glabrous. Leaves opposite, petioles 0.1-0.2 cm long, scarcely distinct from narrow blades; blades narrowly lanceolate, mostly 1.5-3.5 cm long, 0.2-0.4 mm wide, base and apex narrowly acuminate, margins narrowly recurved, with ca. 3 large teeth, surfaces glabrous, paler below, without glandular dots; venation pinnate with ca. 3 short pairs of spreading secondaries. Inflorescence with one or two long-pedunculate heads at tips of leafy stems, peduncles 1.5-2.5 cm long, 2-4 linear bracteoles 3-4 mm long, paired or alternate. Heads 6-7 mm high, 5-6 mm wide; involuclral bracts ca. 20, in ca. 2 series, subequal, ca. 6 mm long, 1 mm wide, narrowly acute, glabrous outside, bicostate; florets ca. 17 in a head; corolla white, ca. 3.5 mm long, basal tube ca. 1.5 mm long, throat ca. 1.5 mm long, lobes ca. 0.6 mm long, glabrous, smooth outside, densely papillose inside; anther collars ca. 0.3 mm long, cell walls not obscured by thickenings;

thecae pale, ca. 0.7 mm long; apical appendages semicircular, ca. 0.2 mm long and wide; style base scarcely enlarged. Achenes ca. 3 mm long, densely setulose on ribs and upper surfaces; carpopodium cylindrical; pappus of ca. 25 easily deciduous white bristles, to 2.5 mm long, scarcely broadened at tips. Pollen grains ca. 25 μ m in diameter.

PARATYPES: COLOMBIA. Antioquia: Municipio La Unión, localidad San Miguel, la Cruz, finca La Esperanza, crece sobre musgos, flores blancas "sirve para las llagas", 4 Apr 1984, A. Zapata & E. Céspedes 4 (HUA, MO); Mpio. Sonsón, vereda Ventiadero, sitio La Morelia, quebrada La Negra, en la via La Unión – Sonsón, 2100 m, bosque montano, 5°45'N, 75°23'W, hierba riparia, sobre rocas, en lecho de quebrada, capitulos blancos, rara, localmente abundante, 16 Aug 1992, R. Callejas & F.J. Roldán 10478 (HUA, NY).

Ageratina fleischmannioides is known only from the type and paratype series from Antioquia, Colombia. The habit is similar to species of *Fleischmannia* such as *F. cuatrecasasii* R.M. King & H. Rob., *F. haughtii* R.M. King & H. Rob. and *F. sideritides* (Benth. ex Ørsted) R.M. King & H. Robinson, that occur in or near the Pacific coast area of Colombia, but the combination of narrow leaves and the habitat on mossy rocks along streams seems unique in *Ageratina*.

Ageratina (Andinia) dillonii H. Rob., **sp. nov.** TYPE: PERU. Lambayeque: Ferrenafe, ca. 7 km NW of Incahausi, near Cerro Punamachay on trail to Laguna Hualtaco, Jalca formation dominated by *Stipa* grass, 3300-3550 m, shrub to 1.5 m, florets white, 16 Nov 1984, M.O. Dillon & D. Skillman 4144 (holotype US; isotype F). (Fig. 6).

Ad Ageratinam piurae simila sed in foliis leniter serrulatis supra glandulopunctatis subtus albo-tomentosis et in bracteis involucri anguste acutis distincta.

Shrubs to 1.5 m tall, densely branched; stems terete, ridged, thinly white tomentose, becoming sordid below; internodes 0.8-1.5 cm long. Leaves opposite, petioles slender, mostly 7-9 mm long; blades thinly coriaceous, elliptic-ovate, mostly 2.5-3.5 cm long, 1-2 cm wide, base

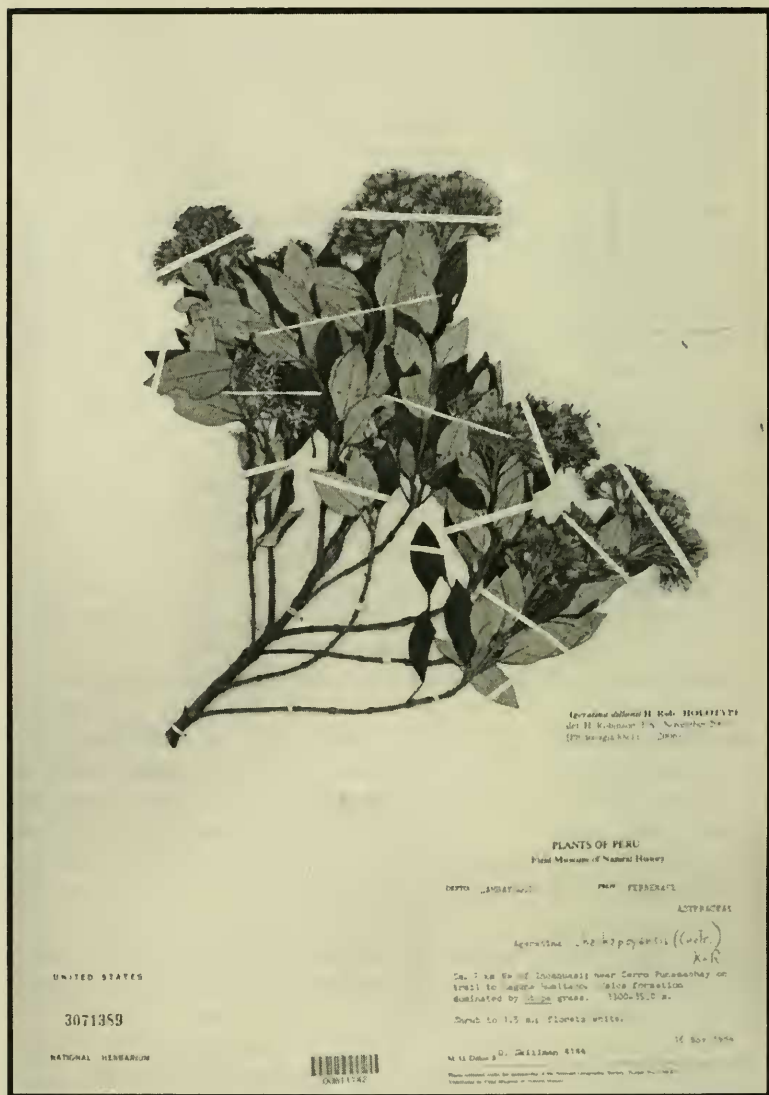


Fig. 6. *Ageratina dillonii* H. Robinson, holotype, United States National Herbarium (US).

obtuse to short-acute, margins with few small teeth, appearing entire, apex shortly acute, upper surface dark green, densely glandular-punctate, minutely puberulous on larger veins, lower surface densely white-tomentose; venation pinnate with ca. 4 erect-patent secondary veins in each half, midvein weakly prominent. Inflorescence rather abruptly terminal on leafy branches, broadly corymbiform, rather dense; peduncles mostly 2-6 mm long, white-tomentose; heads 8-9 mm high, ca. 4 mm wide; involucre bracts 5-8, linear-lanceolate, ca. 5 mm long, 0.8-1.0 mm wide, tips narrowly acute, outside thinly white-tomentose; florets 6-10 in a head; corollas white, ca. 6.5 mm long, glabrous, basal tube ca. 2 mm long, throat ca. 3 mm long, lobes 0.5-0.8 mm long, smooth outside, densely papillose inside; anther collars ca. 0.5 mm long, thecae reddish, ca. 1.3 mm long; apical appendage oblong-ovate, ca. 0.35 mm long; style base distinctly enlarged. Achene 2.8-3.3 mm long, with minute glands on ribs; carpodium annuliform; pappus of ca. 30, white, capillary bristles ca. 5 mm long, not broadened distally. Pollen grains ca. 27 μ m in diameter.

Ageratina dillonii is known only from the type collection. The species belongs to a small group in northern Peru with tomentose leaf undersurfaces. Both relatives, *A. piurae* (B.L. Rob.) R.M.King & H. Rob. of Piura and *A. chachapoyensis* (Cuatrec.) R.M.King & H. Rob. of Amazonas have more sordid tomentum, more obtuse or rounded leaf bases, more toothed or crenate leaf margins, blunter involucre bracts, and darker pappus bristles. The Piura species is closer in number of florets in a head, 10-15, but has a totally non-punctate leaf upper surface between its veins. The Amazonas species has punctate leaves, but it has 35-50 florets in the heads.

The new species has a strong superficial resemblance to the distantly related *Grosvenoria lopezii* of Piura, Peru, in the size and shape of the leaves and in the pale tomentose undersurfaces of the leaves.

Ageratina (Ageratina) acevedoi H. Rob., **sp. nov.** TYPE: BOLIVIA. Cochabamba: Prov. Sacaba, new road from Cochabamba to Santa Cruz, Cruce to Tablas Monte, 5 km from Represa de Corani, 2000

m, 25 Jul 1994, P. Acevedo-Rdgz, A. Ferruci & M. Fernandez 6577 (holotype US). (Fig. 7).

Ad Ageratinam glechonophyllum simila sed in capitulis minoribus et in involucri distincte brevioribus non stipitato-glanduliferis distincta.

Erect to decumbent herb or subshrub, 0.5-1.0 m tall; moderately branched; stems terete, brown, densely pilose to hirtellous; internodes mostly 4-7 cm long. Leaves opposite, petioles slender, ca. 1 cm long; blades ovate, thinly herbaceous, mostly 2.5-5.5 cm long, 1.5-3.5 cm wide, base obtuse to slightly cordate, margins serrulate to serrate with 5-10 blunt teeth, apices of stem leaves narrowly acuminate, both surfaces pilose, more concentrated on veins below, lower surface slightly paler, without glandular dots; trinervate near base. Inflorescences broadly corymbiform or thyrsiform with corymbiform clusters; peduncles mostly 4-8 mm long, densely puberulous to hirtellous. Heads 5-6 mm high and wide; involucre short, eximbricate, of 13-16 elliptical, membranaceous bracts, mostly 3.0-3.5 mm long, ca. 0.8 mm wide, apex obtuse to short-acute, scarious, outside bicostate, sparsely to densely puberulous. Florets 25-27 in a head; corollas white, 2.5-3.5 mm long, basal tube slender, 1.0-1.5 mm long, throat campanulate, 1.0-1.5 mm long, lobes 0.3-0.5 mm long, smooth and sparsely pilosulous outside, densely papillose inside; anther collars ca. 0.2 mm long; thecae pale, 0.5-0.6 mm long; apical appendages oblong-ovate, ca. 0.15 mm long, 0.13 mm wide; style base with enlarged node. Achenes fusiform, ca. 1.8 mm long, with short setulae dense along ribs, sides bare except above; carpopodium pale, cylindrical; pappus 2.5-3.0 mm long, of ca. 25 easily deciduous bristles slightly broadened distally. Pollen grains ca. 18µm in diam.

PARATYPE: BOLIVIA. La Paz: Sud Yungas, Pariguaya Plazuela, en el valle seco del río Chunganayo, 16°40'S 67°29'W, 2250 m, 30 Apr 1995, St. Beck 22434 (LPB, US).

Ageratina acevedoi is one of two Bolivian species described here with small corollas and short involucre bracts. The two differ from the common *A. glechonophylla* (Less.) R.M. King & H. Rob. of Chile,

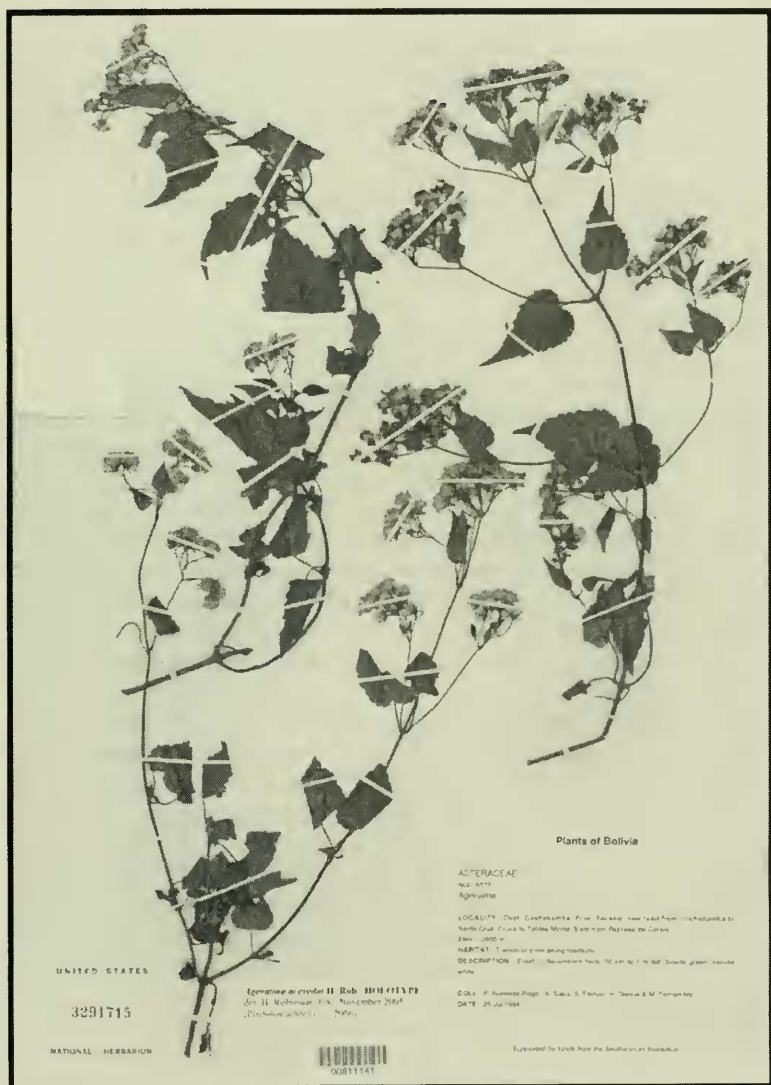


Fig. 7. *Ageratina acevedoi* H. Robinson, holotype, United States National Herbarium (US).

Bolivia, Peru and southern Ecuador by the small heads and the lack of stipitate glands in the inflorescence. Of the two new species, *A. acevedoi* is distinct by the hairy stems and leaves and by the achenes with densely setuliferous ribs.

Ageratina (*Ageratina*) *feuereri* H. Rob., **sp. nov.** TYPE: BOLIVIA.

La Paz: Prov. Bautista Seavedre, Charazani-Tal, linke Talseite oberhalb der Furt bei Cilij, am Weg Richtung Chullina, Veg.-Aufn 289, 2900 m, 4 Apr 1980, T. Feuerer 4068a (holotype US, isotype LPB).

Ad Ageratinam acevedoi simila sed in caulibus foliis pedunculis et involucris vix sparse puberulis vel glabris et in achaenia plerumque non setuliferis differt.

Erect subshrubs to 0.5 m tall, rather densely branching; stems subquadrangular, mostly glabrous. Leaves opposite, petioles 0.2-0.5 cm long; blades ovate, herbaceous, mostly 1.5-2.5 cm long, 0.8-1.4 cm wide, base rounded, margins with ca. 8 blunt, minute serrulations, apex acute, upper surface essentially glabrous with puberulous veins, lower surface sparsely, minutely puberulous, with dark reticulum of veinlets, without glandular dots; trinervate at or near base. Inflorescences with small corymbiform clusters slightly exerted at ends of leafy branches; peduncles 2-7 mm long, minutely, sparsely puberulous. Heads 5-6 mm high and wide; involucral bracts ca. 20, oblong-elliptical, mostly ca. 3.5 mm long, 1 mm wide, often reddish distally, short-acute, outside with few minute hairs. Florets 17-25 in a head; corollas white, ca. 3.2 mm long, basal tube slender, ca. 1.3 mm long, throat abruptly campanulate, ca. 1.3 mm long, lobes 0.5-0.8 mm long, smooth with sparse minute hairs outside, densely papillose inside; anther collars ca. 0.35 mm long; thecae pale, ca. 0.8 mm long; apical appendage semicircular, ca. 1.5 mm long; style with basal node. Achenes ca. 2.9 mm long, fusiform, with short spicules on ribs, a few longer setulae near pappus; with pale cylindrical carpopodium; pappus of ca. 30 easily deciduous bristles ca. 3.2 mm long, not broadened beyond middle. Pollen grains ca. 18 μ m in diam.

Ageratina fewereri is presently known only from the type. It is closely related to *A. acevedoi*, but differs by the nearly glabrous stems, leaves and involucre and the achene ribs with only small spicules and a few setulae. The single specimen also seems to have a more erect shrubby habit and a more diffuse inflorescence with smaller clusters of heads. None of the leaves has narrowly acuminate tips.

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